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CLAIMS

1. A splitter comprising:
 - a substantially single-mode input waveguide;
 - 5 at least two output waveguides; and
 - a non-adiabatic tapered waveguide optically coupled between the input waveguide and the output waveguides;
 - said waveguides being formed on a substrate; wherein
 - the non-adiabatic tapered waveguide, along at least a portion of its
 - 10 length, widens in width towards the output waveguides, in a plane parallel to the substrate, and
 - the non-adiabatic tapered waveguide merges substantially continuously with the input waveguide in a direction parallel to the optical axis of the input waveguide.
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2. A splitter according to claim 1, wherein at least an initial portion of the non-adiabatic tapered waveguide proximal to the input waveguide has a taper angle which increases towards the output waveguides.
- 20 3. A splitter according to claim 1 or claim 2, wherein the non-adiabatic waveguide tapers gradually so as to excite a second order mode therein.
4. A splitter according to claim 3, wherein the length of the non-adiabatic tapered waveguide, in a direction parallel to the direction of propagation
- 25 of an optical signal therein, is such that the phase difference between the fundamental and second order modes, at an output end of the non-adiabatic tapered waveguide is equal to $M\pi$ where $M=1,3,5,\dots$

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5. A splitter according to any preceding claim, wherein the non-adiabatic tapered waveguide tapers substantially symmetrically with respect to the direction of propagation of an optical signal therein.
- 5 6. A splitter according to claim 5, wherein the non-adiabatic tapered waveguide has opposing tapered sides each having a taper shape based on a perturbed cosine curve.
7. A splitter according to any preceding claim, wherein said output
10 waveguides are substantially single mode waveguides.
8. A splitter according to claim 7, wherein at least one of the output waveguides has an adiabatically tapered end which is connected to an output end of the non-adiabatic tapered waveguide and which widens in
15 width towards the non-adiabatic tapered waveguide.
9. A splitter according to any of claims 1 to 7, wherein there is a gap between an output end of the non-adiabatic tapered waveguide and respective ends of the output waveguides optically coupled thereto.
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- 10.A 1×2^N splitter, where $N=2,3,4,\dots$, comprising a plurality of splitters according to any preceding claim.
- 11.A 1×2 splitter substantially as described herein with reference to Fig.5.
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- 12.A 1×2 splitter substantially as described herein with reference to Fig.8.